

87-88  
Block Grant

WAUKEGAN MUNICIPAL LANDFILL #1

EPA Region 5 Records Ctr



350906

Location

The landfill is located south of Yorkhouse Road, west of McAree Road, north of Hendee Street in Waukegan, Illinois. The plat location is NE $\frac{1}{4}$  of Section 5, Township 45 North Range 12 East in Waukegan Township. The size of the site is approximately 22 acres. See figure 15 for a map of the landfill.

Background

Well logs on file with the LCHD show 60 to 70 feet of clay separating the landfill from a 10 to 20 foot thick sand and gravel aquifer. Underlying this aquifer is 50 to 75 feet of clay followed by a gravel aquifer. Bedrock is approximately 225 feet below the surface.

The LCHD granted a permit to the City of Waukegan and T & K Disposal Company, Inc. to install and operate a solid waste disposal facility on May 19, 1970. Household and commercial wastes were landfilled at the site. Landfilling was completed in July 1973, but final cover was not approved by the IEPA until July 1976.

The Illinois Attorney General's Office, Waukegan Park District, City of Waukegan, and T & K Disposal completed litigation in 1988 to determine responsibility for maintenance and remedial action at the site. The Waukegan Park District, City of Waukegan, and T & K Disposal are responsible for the following remedial actions to be completed at the site, installation of wells for the collection and monitoring of leachate, maintenance of "No Trespassing" and "No Dumping" signs around the site, install 2 foot thick cap with 6 inch top soil cover graded for maximum run-off, seed the top soil to prevent erosion, install barriers around the site to prevent vehicular traffic on site, install groundwater monitoring wells to be sampled quarterly, remove and properly dispose of leachate produced at the site. See appendix for complete terms of the consent order.

Inspections

At the beginning of the 1987-88 block grant period the site was in unsatisfactory condition. Erosion, leachate seeps, and lack of vegetative cover were the major causes for this condition. Action was taken during the year to improve conditions at the site. Work was done on the site cap to clay pack leachate seeps and bring the cap up to the mandatory 2 foot minimum thickness. Three wells were installed for the purpose of collection.

and monitoring of leachate. Work will be ongoing through the next year to complete the aforementioned required remedial actions.

#### Surface Water Monitoring

Upstream (S101), midstream (S201), and downstream (S301) samples were collected from the drainage ditch north of the landfill. See figure 15 for sample locations. None of the parameters analyzed exceeded IEPA general water quality standards. Several parameters showed elevated levels downstream when compared with upstream samples, they included COD, ammonia, chloride, TDS, and sulfate. A leachate seep located along the bank between the midstream and downstream sample is the probable cause for this.

Upstream (S102), midstream (S202), and downstream samples were collected from the drainage ditch south of the landfill. The upstream sample is affected by a leachate seep at the point of sampling, resulting in levels of ammonia, chloride, iron, and boron exceeding IEPA general water quality standards. All levels elevated by the leachate seep appear to be diluted with movement downstream.

Three (3) water samples were collected from Beaver Pond which lies east of the site. Lead was found to exceed IEPA general water quality standards in the South Pond sample (G502), however, no lead contamination has been noted in other surface water data near the landfill. The source of the lead may be unrelated to the landfill or the dilution could be due to laboratory error. No other analyzed parameters exceeded general water quality standards.

#### Leachate

Nine samples of leachate were collected from the site. Three (3) samples were collected from leachate seeps around the site and six samples were collected from the three leachate collection/monitoring wells onsite. These samples were analyzed for inorganic parameters by the LCHD Laboratory. See following table for results. Samples from the north and south leachate seeps were also analyzed by CBC Environmental Services for organic compounds and heavy metals. See appendix C for results. These analyses were done to characterize the leachate and the make-up of the contaminants which could leave the site. The Illinois Attorney General's Office was also interested in determining if the leachate was degrading State surface waters. Similar

WAUKEGAN MUNICIPAL #1 LANDFILL  
LAKE COUNTY HEALTH DEPARTMENT LABORATORY RESULTS  
North Ditch

Parameter	Standard <sup>1</sup> mg/l	5/4/88 Upstream S101	5/4/88 Midstream S201	5/4/88 Downstream S301	5/4/88 North Seep L102
Ammonia	15 0	< 0 1	< 0 1	0 15	600
BOD	NE <sup>2</sup>	3 0	1 0	2 8	> 2500
Chloride	500	76	80	80	84
Hardness	NE <sup>2</sup>	340	310	370	3550
Iron	1 0	0 16	0 382	0 360	984
Nitrate	NE <sup>2</sup>	< 0 05	< 0 05	0 051	< 0 05
pH	7 5-9 0	7 9	8 0	7 8	6 2
Phosphorus	0 05	0 017	0 014	0 014	0 022
Total Dissolved Solids	NE <sup>2</sup>	494	508	534	23340
Sulfate	500	76 8	83 8	84 8	339
Specific Conductivity	NE <sup>2</sup>	730	730	760	> 1999
Temperature	NE <sup>2</sup>	53 F	57 F	61 F	58 F
COD	NE <sup>2</sup>	8	16	20	34400
Boron	1 0	0 774	0 219	0 278	4 42
Zinc	1 0	< 0 01	< 0 01	< 0 01	27 58
Cadmium	0 01	< 0 01	< 0 01	< 0 01	< 0 01
Lead	0 01	< 0 01	< 0 01	< 0 01	< 0 01
Copper	0 01	< 0 01	< 0 01	< 0 01	< 0 01

1 35 Ill Adm Code Part 302 Subpart B IEPA General Water Quality Standards  
for Surface and Non-Drinking Waters

2 NE Not Established

3 NA Not Analyzed

WAUKEGAN MUNICIPAL #1 LANDFILL  
LAKE COUNTY HEALTH DEPARTMENT LABORATORY RESULTS

Parameter	Standard <sup>1</sup> mg/l	South Ditch 5/4/88 Upstream S102	5/4/88 Midstream S202	5/4/88 Downstream S302	5/4/88 Pond Tile S501	Bevier Pond 5/4/88 South Pond S502	5/4/88 North Pond S503
Ammonia	15 0	217	31	29	0 4	< 0 1	< 0 1
BOD	NE <sup>2</sup>	> 2600	383	65	1 8	3 6	1 5
Chloride	500	1225	320	320	164	94	95
Hardness	NE <sup>2</sup>	2600	1140	950	430	330	188
Iron	1 0	357	0 772	2 67	0 430	0 204	0 098
Nitrate	NE <sup>2</sup>	< 0 05	< 0 05	< 0 05	0 064	< 0 05	0 05
pH	6 5 9 0	6 7	7 8	8 0	8 0	8 4	8 5
Phosphorus	0 05	< 0 01	0 061	0 014	0 017	0 020	0 014
Total Dissolved Solids	NE <sup>2</sup>	19520	3040	2380	704	436	326
Sulfate	500	57 6	NA <sup>3</sup>	NA <sup>3</sup>	88 4	70	63 5
Specific Conductivity	NE <sup>2</sup>	> 1999	> 1999	> 1999	950	660	670
Temperature	NE <sup>2</sup>	71 F	66 F	58 F	60 F	67 F	67 F
COD	NE <sup>2</sup>	572	940	260	36	16	16
Boron	1 0	6 43	1 24	1 07	0 298	0 184	0 167
Zinc	1 0	< 0 01	< 0 01	< 0 01	< 0 01	0 016	< 0 01
Cadmium	0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01
Lead	0 01	< 0 01	< 0 01	NA <sup>3</sup>	< 0 01	0 013	< 0 01
Copper	0 01	< 0 01	< 0 01	NA <sup>3</sup>	< 0 01	< 0 01	< 0 01

1 35 Ill Adm Code Part 302 Subpart B IEPA General Water Quality Standards For Surface and Non Drinking Water

2 NE Not Established

3 NA Not Analyzed

WAUKEGAN MUNICIPAL #1 LANDFILL  
LAKE COUNTY HEALTH DEPARTMENT LABORATORY RESULTS  
Leachate Wells

Parameter	Standard <sup>1</sup> mg/l	Southwest Well <sup>1</sup>		Southeast Well <sup>1</sup>		Northeast Well <sup>1</sup>	
		5 ft LW501	15 ft LW501	5 ft LW502	10 ft LW502	5 ft LW503	10 ft LW503
Ammonia	3 0	600	920	540	520	60	60
BOD	30	> 7430	> 7300	> 7510	> 7410	62	91
Chloride	NE <sup>2</sup>	1800	2430	1530	1500	520	530
Hardness	NE <sup>2</sup>	5200	9300	4900	4800	710	780
Iron	2 0	916	1320	876	954	27	13 6
Nitrate	NE <sup>2</sup>	2 51	1 19	2 58	2 82	0 144	0 104
pH	6 0 9 0	6 2	5 8	6 5	6 5	6 5	6 7
Phosphorus	1 0	0 043	0 043	0 204	0 043	0 135	0 118
Total Dissolved Solids	NE <sup>2</sup>	24760	33680	19900	19820	3320	3280
Sulfate	NE <sup>2</sup>	929	1590	223	335	589	552
Specific Conductivity	NE <sup>2</sup>	> 1999	> 1999	> 1999	> 1999	> 1999	> 1999
Temperature	NE <sup>2</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>
COD	NE <sup>2</sup>	28200	50000	35000	28400	232	248
Boron	NE <sup>2</sup>	15 0	14 6	10 9	12 0	2 16	1 95
Zinc	1 0	24	50 4	1 19	1 03	< 0 01	< 0 01
Cadmium	0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01
Lead	0 01	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	0 011	< 0 01
Copper	0 01	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	0 029	0 022

1 35 Ill Adm Code Part 304 Subpart A IEPA General Effluent Standards for Discharge Waters

2 NE Not Established

3 NA Not Analyzed

WAUKEGAN MUNICIPAL #1 LANDFILL  
LAKE COUNTY HEALTH DEPARTMENT LABORATORY RESULTS  
and

Parameter	Standard <sup>4</sup> mg/l	5/4/88 South Leachate Seep L101	5/4/88 Southwest Leachate Seep L103
Ammonia	3 0	185	380
BOD	30	> 2600	> 2500
Chloride	NE <sup>2</sup>	1100	1987
Hardness	NE <sup>2</sup>	2250	7500
Iron	1 0	277	835
Nitrate	NE <sup>2</sup>	< 0 05	< 0 05
pH	6 0 9 0	6 7	6 2
Phosphorus	1 0	< 0 01	0 081
Total Dissolved Solids	NE <sup>2</sup>	12380	26660
Sulfate	NE <sup>2</sup>	NA <sup>3</sup>	983
Specific Conductivity	NE <sup>2</sup>	> 1999	> 1999
Temperature	NE <sup>2</sup>	58 F	58 F
COD	NE <sup>2</sup>	232	34200
Boron	NE <sup>2</sup>	6 01	31 9
Zinc	1 0	0 059	40 380
Cadmium	0 01	< 0 01	< 0 01
Lead	0 01	< 0 01	< 0 01
Copper	0 01	< 0 01	< 0 01

2 NE Not Established

3 NA Not Analyzed

4 Ill Adm Code Part 304 Subpart A IEPA General Effluent Standards for Discharge Water

analysis will be done by the disposal company contracted to remove the leachate from the site to determine whether or not it should be classified as a hazardous or special waste material and how it should be treated and disposed of

### Groundwater Monitoring

Nine groundwater samples were collected from private wells near the landfill and one groundwater sample was collected from the monitoring well (G101) which is screened in the upper sand and gravel aquifer G203 exceeded IEPA drinking water standards for iron, TDS, and sulfate G205 and G208 exceeded IEPA drinking water standards for sulfate and TDS, respectively Elevated levels of TDS, iron and sulfate are common in Lake County groundwater and are considered, in this area, to be due to natural causes

Monitoring well G101 exceeded drinking water standards for iron, TDS, and sulfate Elevated levels of iron, TDS, and sulfates are commonly found in the groundwater in Lake County due to natural conditions However, the fact that the well (G101) has an iron casing and is poorly capped may be a factor influencing the water quality in that well

#### WAUKEGAN MUNICIPAL #1 LANDFILL LAKE COUNTY HEALTH DEPARTMENT LABORATORY RESULTS Groundwater

Parameter	Standard <sup>1</sup> mg/l	4/13/88 G201	4/13/88 G202	4/13/88 G203	4/13/88 G204	4/13/88 G205	4/13/88 G206	4/13/88 G207	4/13/88 G208	4/13/88 G209	Monitoring Well 6/8/88 G101
Ammonia	15	0 34	0 30	0 36	0 24	< 0 1	0 27	0 28	0 37	0 35	0 38
BOD	NE <sup>2</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>
Chloride	250	5 25	7 25	0 5	3 0	5 75	6 0	3 75	4 5	3 5	38 5
Hardness	NE <sup>2</sup>	310	302	685	252	24	440	162	395	292	740
Iron	1 0	0 507	0 254	1 57	0 743	0 071	0 517	0 247	0 605	0 344	3 32
Nitrate	10	< 0 05	< 0 05	0 065	0 052	< 0 05	0 115	< 0 05	< 0 05	< 0 05	< 0 05
pH	6 5-9 0	7 9	8 0	7 5	7 9	7 7	7 7	8 1	7 9	7 9	7 7
Phosphorus	0 05	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>
Total Dissolved Solids	500	495	470	948	394	663	602	333	533	436	1078
Sulfate	250	195	165	390	141	260	206	109	190	167	400
Specific Conductivity	NE <sup>2</sup>	640	660	1120	550	960	740	530	770	630	1150
Temperature	NE <sup>2</sup>	58 F	54 F	65 F	57 F	57 F	52 F	54 F	53 F	55 F	56 F
COD	NE <sup>2</sup>	4	4	4	8	< 4	4	4	< 4	4	12
Boron	1 0	0 661	0 670	0 455	0 546	0 546	0 708	0 670	0 625	0 546	0 182
Zinc	1 0	0 037	0 096	0 126	0 027	< 0 01	0 073	< 0 01	0 064	0 012	3 011
Cadmium	0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01
Lead	0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01
Copper	0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01

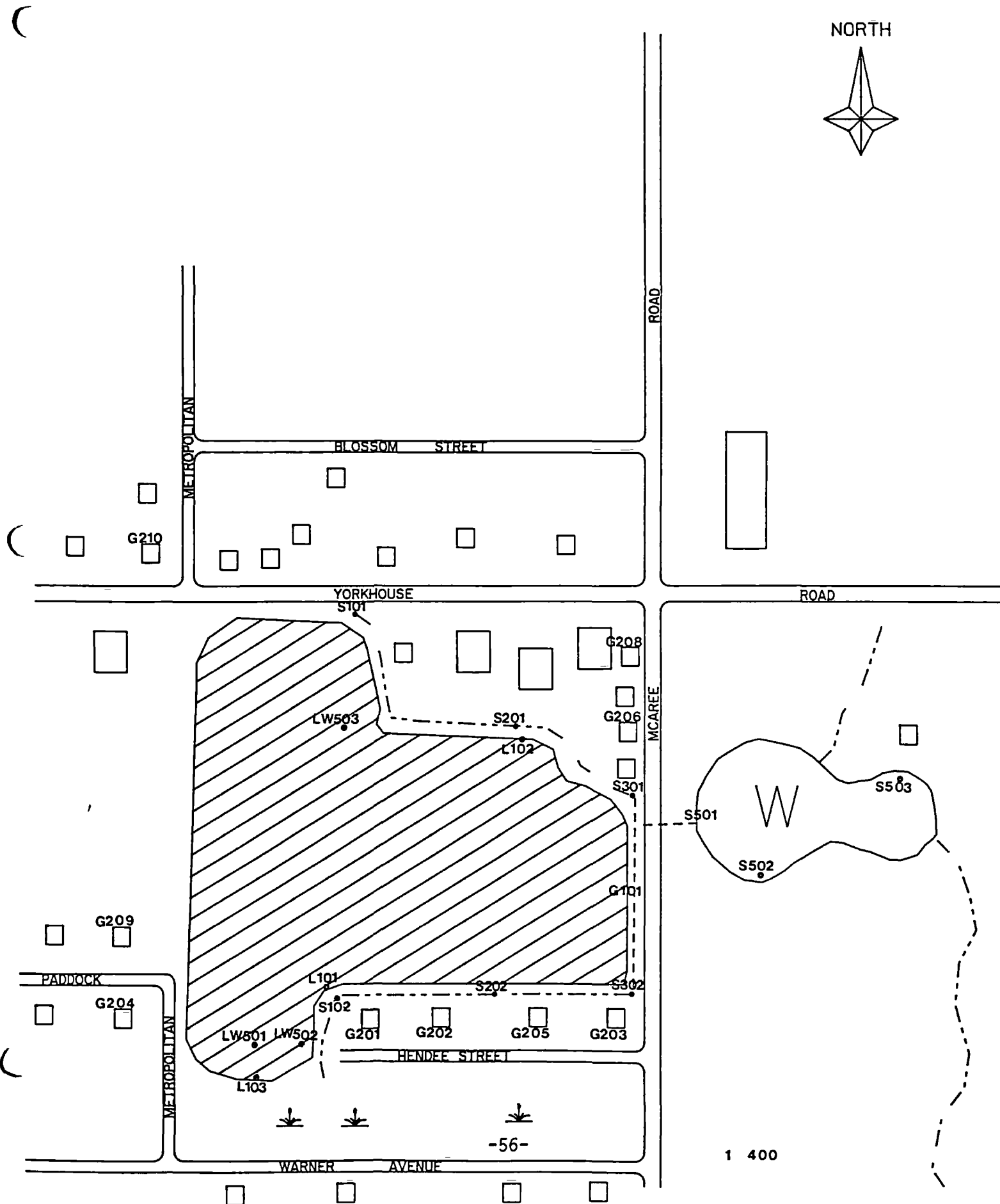
1 35 Ill Adm Code Part 302 Subpart B IEPA General Water Quality Standards for Surface and Non Drinking Waters

2 NE Not Established

3 NA Not Analyzed

FIGURE 15

# WAUKEGAN MUNICIPAL #1 LANDFILL



88-89  
Block Grant

WAUKEGAN MUNICIPAL #1 LANDFILL

Location

The landfill is located south of Yorkhouse Road, west of McAree Road north of Hendee Street in Waukegan, Illinois. The survey grid location of the site is NE $\frac{1}{4}$  of Section 5, Township 45 North, Range 12 in Waukegan, Township. The size of the site is approximately 22 acres. See Figure 15 for a map of the landfill area.

Background

Well logs on file with the LCHD shows 60 to 70 feet of clay separating the landfill from a 10-20 foot thick sand and gravel aquifer. Underlying this aquifer is 50-75 feet of silty clay till followed by a basal gravel aquifer. Silurian aged bedrock is approximately 225 feet below the surface.

The LCHD granted a permit to the City of Waukegan and T & K Disposal to operate a solid waste disposal facility on May 19, 1970. Household and commercial wastes were landfilled at the site. Landfilling was completed at the site in July 1973. The site was approved closed and covered by the IEPA in July 1976.

The Illinois Attorney General's Office completed litigation with the City of Waukegan, Waukegan Park District, and T & K Disposal in 1988 to determine responsibility for maintenance and remedial action at the site. Refer to Appendix E for a copy of the terms of the consent order.

Inspections

Inspections found the site to be in satisfactory condition. No erosion problems were found. The south ditch contains many reddish colored stains which are thought to be from leachate seeps. Much work has been done to improve the site under the consent order. The cover has been regraded and covered with topsoil. The leachate collection system has been completed and is ready for use. Work is underway to restrict vehicular access to the site and revegetate the site cap.

Surface Water Monitoring

Upstream (S101), midstream (S201), and downstream (S301) samples were collected from the drainage ditch which runs along the north bank of the site. None of the parameters analyzed for in the north ditch samples exceeded IEPA general water quality standards.

Upstream (S102) midstream (S202), and downstream (S302) samples were collected from the ditch which runs along the south bank of the site. The midstream area of the ditch appears to be impacted by leachate seeps flowing in the ditch. The midstream sample results show levels of iron, ammonia, chloride, phosphorus, pH, and boron that exceed IEPA general water quality standards. The elevated levels are moderated with movement away from the leachate seeps. Leachate seeps are expected to be eliminated once the leachate collection system is operating.

Three samples were collected from Beaver Pond which lies east of the landfill site. Phosphorus slightly exceeded the general water quality standard at the west inflow (S501) and the outflow to Yeoman Creek (S503). Since the inflow level of phosphorus (0.056 mg/L) is less than the outflow level of phosphorus (0.057 mg/L) it is inconclusive whether the landfill is having an impact on phosphorus levels in the pond. No other parameters exceeded general water quality standards.

#### Groundwater Monitoring

##### Private Wells

Ten groundwater samples were collected from private wells near the landfill. Six of these wells showed elevated levels of total dissolved solids (TDS) and sulfate which exceeded the IEPA drinking water standards. Elevated levels of TDS and sulfate are common for groundwater in the area and is considered to be due to natural causes. Wells G209 and G210 had levels of copper at 0.081 mg/L and 0.044 mg/L respectively. These levels exceed the drinking water standard of 0.02 mg/L since no copper was found in any other samples the findings are considered to be due to home plumbing. Copper is not a parameter of health significance.

##### Monitoring Wells

Six monitoring wells were sampled and analyzed for inorganic parameters by the LCHD laboratory. Monitoring wells G105 and G106 were not sampled because the protective well casing could not be opened for access to the monitoring wells. These wells monitor the glacial drift around the landfill above and below the level of the leachate collection system. The odd numbered wells are screened above the leachate collection system and the even numbered wells are screened below the leachate collection system. The old monitoring well G101 has been sealed and is no longer in use. The new monitoring wells are located in four locations around the site (see map). All of the wells sampled exceeded the general water quality standard set for iron. G102



exceeded the general water quality standard for chloride of 500 mg/L, a level of 593 mg/L was found. G101 exceeded the general water quality standard for ammonia of 15.0 mg/L, a level of 20 mg/L was found. These results appear to indicate migration of contaminants from the landfill to the surrounding drift material. These wells may have become contaminated, however, in the installation process. Due to their locations on the banks of the landfill site, the individual wells' proximity to refuse is unclear and may be the source of the contamination. Further, sampling is necessary to see if any trends develop which would indicate the source of the contamination.

WAUKEGAN MUNICIPAL #1 LANDFILL  
LAKE COUNTY HEALTH DEPARTMENT LABORATORY RESULTS  
Private Wells

Parameter	Standard <sup>1</sup> Mg/L	4/3/89 G201	4/3/89 G202	4/3/89 G203	4/3/89 G204	4/3/89 G205	4/3/89 G206	4/3/89 G207	4/3/89 G208	4/3/89 G209	4/3/89 G210
Ammonia	15 0	0 41	0 36	0 43	0 20	1 20	0 30	< 0 01	0 44	< 0 01	0 24
BOD	NE <sup>2</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA
Chloride	250	3 8	3 3	1 0	1 4	3 8	1 0	1 0	1 0	1 4	13
Hardness	NE <sup>2</sup>	303	311	690	225	43	422	8	378	8	83
Iron	1 0	0 643	0 464	< 0 10	0 265	< 0 10	0 643	< 0 10	0 802	0 176	< 0 10
Nitrate	10 0	0 067	0 078	< 0 05	0 111	0 051	0 160	< 0 05	0 058	< 0 05	0 05
pH	6 5 9 0	7 5	7 5	7 3	7 9	7 8	7 8	8 3	7 8	8 6	8 2
Phosphorus	0 05	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>
Total Dissolved Solids	500	544	532	894	366	588	548	324	540	458	398
Sulfate	250	220	196	344	107	241	191	47	180	161	176
Specific Conductivity	NE <sup>2</sup>	660	640	1100	510	840	800	500	730	900	580
Temperature	NE <sup>2</sup>	54 F	55 F	54 F	NA <sup>3</sup>	54 F	NA <sup>3</sup>	55 F	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>
COD	NE <sup>2</sup>	< 4	< 4	< 4	< 4	4	8	< 4	12	< 4	6
Boron	1 00	0 671	0 723	0 480	0 649	0 535	0 749	0 536	0 740	0 577	0 948
Zinc	1 00	0 07	< 0 01	0 118	0 088	< 0 01	0 158	< 0 01	0 10	0 061	0 027
Cadmium	0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01
Lead	0 05	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01
Copper	0 02	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 012	< 0 01	< 0 01	< 0 01	0 081 0 044

1 35 Ill Adm Code Part 302 Subpart C Public and Food Processing Water Supply Standards for Present and Potable Water Supplies

2 NE Not Established

3 NA Not Analyzed

WAUKEGAN MUNICIPAL #1 LANDFILL  
LAKE COUNTY HEALTH DEPARTMENT LABORATORY RESULTS

Parameter	Standard <sup>1</sup> Mg/L	North Ditch			South Ditch			5/3/89 Pond Inflow S501	5/3/89 North Inflow S502	5/3/89 Pond Outflow S503
		5/3/89 Upstream S101	5/3/89 Midstream S201	5/3/89 Downstream S301	5/3/89 Upstream S102	5/3/89 Midstream S202	5/3/89 Downstream S302			
Ammonia	15 0	0 21	< 0 1	< 0 1	4 8	715	44	0 9	< 0 1	< 0 1
BOD	NE <sup>2</sup>	< 1	1	< 1	1	>4800	419	4	1	2
Chloride	500	113	118	118	34	1080	9 3	157	86	196
Hardness	NE <sup>2</sup>	361	376	373	559	6280	1100	416	290	257
Iron	1 0	0 314	0 334	0 971	3 57	2050	4 28	0 592	0 184	0 702
Nitrate	NE <sup>2</sup>	0 041	0 063	0 083	1 80	15 6	0 082	0 063	0 995	0 246
pH	6 5 9 0	7 8	8 0	8 0	8 2	6 4	7 9	8 0	8 2	8 2
Phosphorus	0 05	0 017	0 017	0 044	0 187	5 90	1 68	0 056	0 042	0 057
Total Dissolved Solids	NE <sup>2</sup>	448	486	472	1192	20140	1850	560	360	504
Sulfate	500	93 2	109	114	227	437	NA <sup>3</sup>	116	83 2	107
Specific Conductivity	NE <sup>2</sup>	880	960	1000	2100	19000	3000	1200	740	1040
Temperature	NE <sup>2</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>
COD	NE <sup>2</sup>	< 2	2	10	69	24600	618	22	16	14
Boron	1 00	0 224	0 262	0 284	1 06	5 43	0 825	0 265	0 177	0 171
Zinc	1 00	< 0 01	< 0 01	< 0 01	< 0 01	0 356	0 022	< 0 01	< 0 01	< 0 01
Cadmium	0 05	< 0 01	< 0 01	< 0 01	< 0 01	< 0 05	< 0 01	< 0 01	< 0 01	< 0 01
Lead	0 10	< 0 01	< 0 01	< 0 01	< 0 01	NA <sup>3</sup>	< 0 01	< 0 01	< 0 01	< 0 01
Copper	0 02	< 0 01	< 0 01	< 0 01	< 0 01	NA <sup>3</sup>	< 0 01	< 0 01	< 0 01	< 0 01

1 35 Ill Adm Code Part 302 Subpart B General Water Quality Standards for Surface and Non Drinking Water

2 NE Not Established

3 NA Not Analyzed

WAUKEGAN MUNICIPAL #1 LANDFILL  
LAKE COUNTY HEALTH DEPARTMENT LABORATORY RESULTS  
Monitoring Wells

Parameter	Standard <sup>1</sup> Mg/L	6/7/89 G101	6/7/89 G102	6/7/89 G103	6/7/89 G104	6/7/89 G107	6/7/89 G108
Ammonia	15 0	2 6	1 3	0 37	0 45	20	9 2
BOD	NE <sup>2</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>
Chloride	500	500	593	375	134	333	279
Hardness	NE <sup>2</sup>	918	1570	998	519	1120	968
Iron	1 0	29 9	26 9	19 2	6 22	39 7	23 5
Nitrate	NE <sup>2</sup>	0 069	0 064	0 099	1 00	0 052	0 074
pH	6 5-9 0	7 1	6 9	6 9	7 2	6 90	7 0
Phosphorus	0 05	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>
Total Dissolved Solids	NE <sup>2</sup>	1569	2956	1696	820	2052	1850
Sulfate	500	32 9	16 2	103	97 2	18 9	15 9
Specific Conductivity	NE <sup>2</sup>	2300	2100	2400	1200	3200	2800
Temperature	NE <sup>2</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>	NA <sup>3</sup>
COD	NE <sup>2</sup>	72	1470	72	35	273	207
Boron	1 00	0 509	0 408	0 408	0 288	1 18	0 977
Zinc	1 00	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01
Cadmium	0 05	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01	< 0 01
Lead	0 10	< 0 01	< 0 01	< 0 01	< 0 01	0 042	< 0 01
Copper	0 02	NA <sup>3</sup>	< 0 05	< 0 01	< 0 01	< 0 100	< 0 01

1 35 Ill Adm Code Part 302 Subpart B General Water Quality Standards For Surface and Non-Drinking Water

2 NE - Not Established

3 NA - Not Analyzed

# WAUKEGAN MUNICIPAL #1 LANDFILL

NORTH

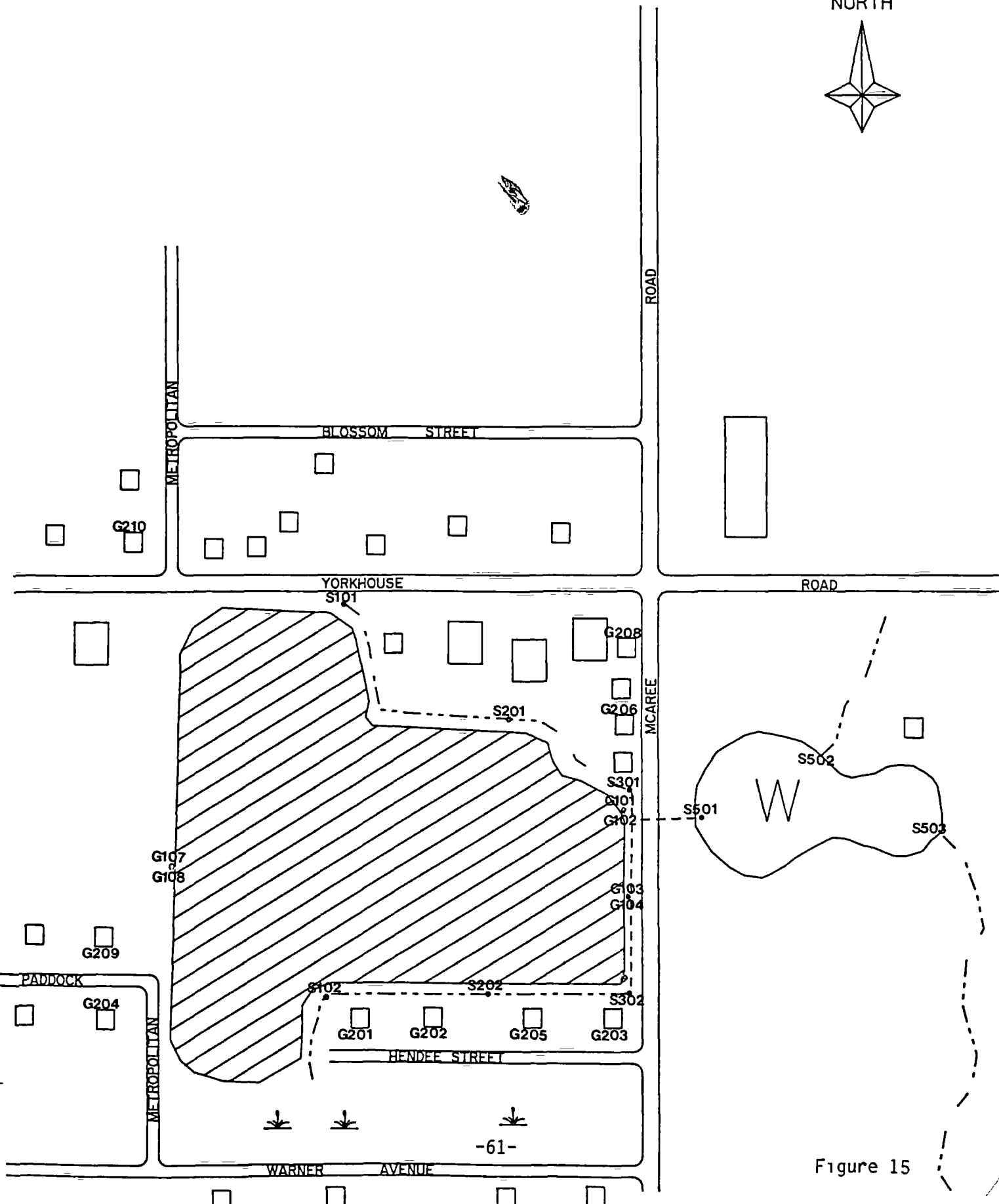
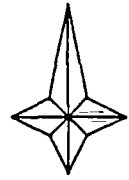


Figure 15